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| 09/995,766 | 11/29/2001 | Jang-Kun Song | 8071-187T (OPP0101190US) | 1747 |
| 7590 F. Chau & Associates, LLC 130 Woodbury Road Woodbury, NY 11797 | | | EXAMINER SHAPIRO, LEONID | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/995,766

Applicant(s)

SONG, JANG-KUN

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26 and 31 is/are allowed.
- 6) ☒ Claim(s) 24, 27-29, 32-33 is/are rejected.
- 7) ☒ Claim(s) 34 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 24,29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al. (US Patent No: 6,429,842 B1) in view of Kim et al. (US Patent No. 6,400,424 B1) and Kawachuchi et al. (US Patent No. 6,667,925 B1).

As to claim 24, Shin et al. teaches a method for driving a liquid crystal display (See Fig. 6, items 200, P, T, Col. 3, Lines 3-8), including a plurality of gate lines (See Fig. 6, items G1-Gm, Col. 3, Lines 3-11), a plurality of data lines (See Fig. 6, items D1-Dn, Col. 3, Lines 3-11), a plurality of pixel connected to the plurality of gate lines and the plurality of data lines and arranged in a matrix (See Fig. 6, items P11-Pmn, Col. 3, Lines 10-13), method comprising:

applying a first data voltage of a first polarity to the plurality of data lines (See Figs. 6, 7A, items D1-Dn, Col. 3, Lines 33-45);

providing a first scanning signal for odd pixels in a odd row and even pixels in an even row (See Figs. 6, 7A, items P11-P14 , Col. 3, Lines 33-45);

applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines (See Figs. 6, 7B, items D1-Dn, Col. 3, Lines 46-51); and

providing a second scanning signal for odd pixels in even row and even pixels in an odd row (See Figs. 6, 7B, items P21-P24 , Col. 3, Lines 46-51).

Shin et al. does not show a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines.

Shin et al. does not show a top substrate common electrode, a plurality of common electrode lines arranged alternately between the plurality of gate lines.

Kim et al. teaches a top substrate common electrode, a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines (See Col. 6, Lines 15-19 and Lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Kim et al. into Shin et al. system in order to provide a TFT-LCD having enhanced storage capacitance (See Col. 2, Lines 14-15 in the Kim et al. reference).

Shin et al. teaches applying a first data voltage of a first polarity to the plurality of data lines (See Figs. 6, 7A, items D1-Dn, Col. 3, Lines 33-45) and applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines (See Figs. 6, 7B, items D1-Dn, Col. 3, Lines 46-51).

Shin et al. and Kim et al. do not disclose supplying an overshoot voltage to data voltage upon a variation of a level of the swinging common electrode voltage, wherein a level of the voltage applied to each pixel is varied in response to the overshoot voltage

Kawaguchi et al. teaches supplying an overshoot voltage to data voltage upon a variation of a level of the swinging common electrode voltage, wherein a level of the voltage applied to each pixel is varied in response to the overshoot voltage (See Fig. 1, 15a-15b, item Vcom, Col. 18, Lines 25-35 and Fig. 3, item COM, Col. 21, Lines 15-33).

Notice, that it is inherent that a level of the voltage applied to each pixel is varied in response to the overshoot voltage because voltage applied to pixel depend on common and pixel voltages.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Kawaguchi into Shin et al. and Kim et al. system in order to provide an LCD with quicker response (See Col. 1, Lines 17-20 in the Kawaguchi et al. reference).

As to claim 29, Shin et al. teaches a method for driving a liquid crystal display (See Fig. 6, items 200, P, T, Col. 3, Lines 3-8), including a plurality of gate lines (See Fig. 6, items G1-Gm, Col. 3, Lines 3-11), a plurality of data lines (See Fig. 6, items D1-Dn, Col. 3, Lines 3-11), a plurality of pixel connected to the plurality of gate lines and the plurality of data lines and arranged in a matrix (See Fig. 6, items P11-Pmn, Col. 3, Lines 10-13), method comprising:

applying a first data voltage of a first polarity to the plurality of data lines (See Figs. 6, 7A, items D1-Dn, Col. 3, Lines 33-45);

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providing a first scanning signal to the plurality of first pixels in pairs of neighboring rows (See Figs. 6, 7A, items P11-P14 , Col. 3, Lines 33-45);

applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines (See Figs. 6, 7B, items D1-Dn, Col. 3, Lines 46-51);
and

providing a second scanning to the plurality of first pixels in pairs of neighboring rows (See Figs. 6, 7B, items P21-P24 , Col. 3, Lines 46-51).

Shin et al. does not show a top substrate common electrode, a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines.

Shin et al. does not show a plurality of common electrode lines arranged alternately between the plurality of gate lines.

Kim et al. teaches a top substrate common electrode, a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines (See Col. 6, Lines 15-19 and Lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Kim et al. into Shin et al. system in order to provide a TFT-LCD having enhanced storage capacitance (See Col. 2, Lines 14-15 in the Kim et al. reference).

Shin et al. teaches applying a first data voltage of a first polarity to the plurality of data lines (See Figs. 6, 7A, items D1-Dn, Col. 3, Lines 33-45) and applying a second

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data voltage of a second polarity opposite to the first polarity to the plurality of data lines (See Figs. 6, 7B, items D1-Dn, Col. 3, Lines 46-51).

Shin et al. and Kim et al. do not disclose supplying an overshoot voltage to data voltage upon a variation of a level of the swinging common electrode voltage, wherein a level of the voltage applied to each pixel is varied in response to the overshoot voltage

Kawaguchi et al. teaches supplying an overshoot voltage to data voltage upon a variation of a level of the swinging common electrode voltage, wherein a level of the voltage applied to each pixel is varied in response to the overshoot voltage (See Fig. 1, 15a-15b, item Vcom, Col. 18, Lines 25-35 and Fig. 3, item COM, Col. 21, Lines 15-33).

Notice, that it is inherent that a level of the voltage applied to each pixel is varied in response to the overshoot voltage because voltage applied to pixel depend on common and pixel voltages.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Kawaguchi into Shin et al. and Kim et al. system in order to provide an LCD with quicker response (See Col. 1, Lines 17-20 in the Kawaguchi et al. reference).

5. Claim 27-28, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi, Shin et al. and Kim et al. as applied to claims 24,29 above, and further in view of Moon et al. (US Patent No. 6,421,039 B1).

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Kawaguchi, Shin et al. and Kim et al. do not disclose the swung common electrode voltage in a predetermined period is a square wave having a period identical or multiple to the image signal.

Moon et al. teaches the swung common electrode voltage in a predetermined period is a square wave having a period identical or multiple to the image signal (See Fig. 14a-14b, 15a-15b, items Vs, Vg, Vcom, in description See Col. 6, Lines 52-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Moon et al. into Kawaguchi, Shin et al. and Kim et al. system in order to provide structure of an LCD that can be driven in an AC mode (See Col. 3, Lines 34-35 in the Moon et al. reference).

Allowable Subject Matter

5. Claims 26 and 31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Relative to claims 26 and 31, the major difference between the teaching of the prior art of record (Kim et al., Shin et al., Moon et al. and Kawaguchi et al.) and the instant invention is that the said prior art **does not teach** a formula for a swing amplitude of the common electrode voltage.

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Claims 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claims 34-35, the major difference between the teaching of the prior art of record (Kim et al., Shin et al., Moon et al. and Kawaguchi et al.) and the instant invention is that the said prior art **does not teach** a formula for a swing amplitude of the common electrode voltage.

Response to Amendment

7. Applicant's arguments filed 04/17/07 with respect to claim 24, 27-29, 32-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS

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07.20.07

A handwritten signature in black ink, appearing to read 'R. Hjerpe', with a stylized, cursive script.

RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600